

Introduction to Medical Terminology

EDEM SIALE

BDS, MA, FGCS

Outline

Basic Word Structure

Suffixes

Prefixes

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Basic Word Structure

Basic Word Structure

There are three objectives to keep in mind as you study medical terminology:

1. Analyze words by dividing them into component parts.
2. Relate the medical terms to the structure and function of the human body.
E.g. hepat/itis
3. Be aware of spelling and pronunciation problems. E.g. ilium, ileum

Word Analysis

Studying medical terminology is very similar to learning a new language.

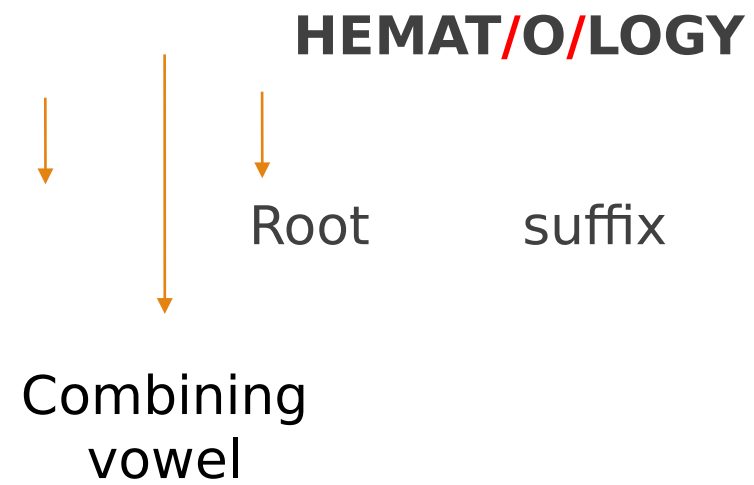
Words may initially sound strange and complicated, although they may stand for commonly known disorders and terms.

For example, **cephalgia** means “headache,” and an **ophthalmologist** is an “eye doctor.”

Firstly, learn how to divide words into their component parts.

Logically, most terms, whether complex or simple, can be broken down into basic parts and then understood.

E.g. **HEMATOLOGY**



The **root** is the *foundation of the word*.

All medical terms have one or more roots.

For example, the root **hemat** means blood.

Most medical roots are derived from other languages (latin, Greek). E.g. Greek – nephro, Latin – ren used in words for kidney

The same root may have different meanings in different fields of study, consider the context (scler – hard/white of eye)

The **suffix** is the *word ending*.

All medical terms have a suffix.

The suffix **-logy** means process of study.

The **combining vowel**—usually o, as in this term—*links the root to the suffix or the root to another root.*

A combining vowel has no meaning of its own; it joins one word part to another.

It is useful to read the meaning of medical terms *starting from the suffix and then going back to the beginning of the term.*

Thus, the term hematology means process of study of blood.

E.g. **ELECTROCARDIOGRAM**

ELECTR/O/CARDI/O/GRAM

The root ***electr*** means electricity.

The root ***cardi*** means heart.

The suffix ***-gram*** means record.

The entire word, reading from the suffix back to the beginning of the term, means record of the electricity in the heart.

Notice that there are two combining vowels—both o—in this term.

The first o links the two roots electr and cardi; the second o links the root cardi and the suffix -gram.

E.g. **GASTRITIS**

GASTR/ITIS

The root ***gastr*** means stomach.

The suffix ***-itis*** means inflammation.

The entire word, reading from the end of the term (suffix) to the beginning, means inflammation of the stomach.

Notice that the combining vowel, o, is missing in this term.

This is because the suffix, -itis, begins with a vowel.

The combining vowel is dropped before a suffix that begins with a vowel.

It is retained, however, between two roots, even if the second root begins with a vowel.

GASTROENTEROLOGY

GASTR/O/ENTER/O/LOGY

The root **gastr** means **stomach**.

The root **enter** means **intestines**.

The suffix **-logy** means **process of study**.

The entire term means process of study of the stomach and intestines.

Note that the combining vowel is used between gastr and enter, even though the second root, enter, begins with a vowel.

When a term contains two or more roots related to parts of the body, **anatomic position** often determines which root goes before the other.

For example, the stomach receives food first, before the small intestine—so the word is formed as gastroenterology, not “enterogastrology.”

In addition to the root, suffix, and combining vowel, two other word parts are commonly found in medical terms.

These are the **combining form** and the **prefix**.

The combining form is simply the root plus the combining vowel.

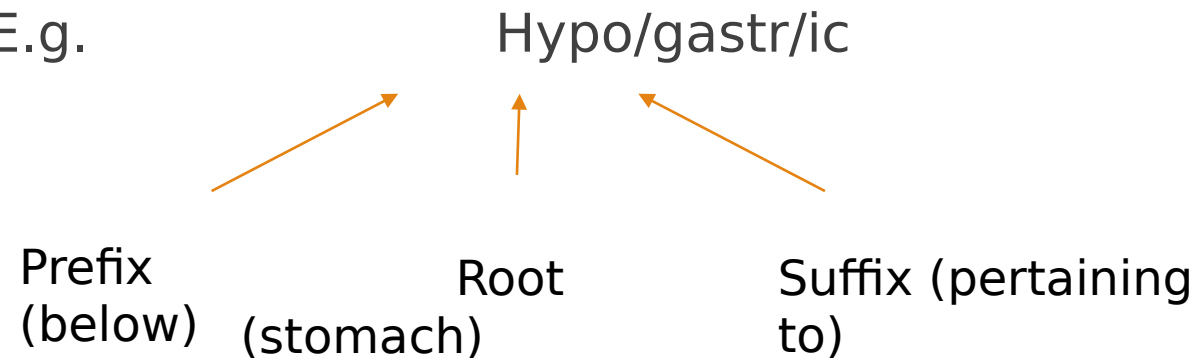
E.g. Hemat/o =combining form

Combining forms are used with many different suffixes. Remembering the meaning of a combining form will help you understand different medical terms.

The prefix is a small part that is attached to the *beginning of a term*.

Not all medical terms contain prefixes, but the prefix can have an important influence on the meaning.

E.g.



In summary, the important elements of medical terms are the following:

1. **Root:** foundation of the term
2. **Suffix:** word ending
3. **Prefix:** word beginning
4. **Combining vowel:** vowel (usually o) that links the root to the suffix or the root to another root
5. **Combining form:** combination of the root and the combining vowel

Common combining forms

Combining form	Meaning	Example of Terminology
Aden/o	gland	Adenoma (tumor of a gland)
Arthr/o	Joint	Arthritis
Bi/o	Life	Biology
Carcin/o	Cancerous, cancer	Carcinoma
Cardi/o	Heart	Cardiology
Cephal/o	Head	Cephalic
Cerebr/o	Cerebrum (largest part of the brain)	Cerebral
Cis/o	To cut	Incision
Crin/o	To secrete (to form and give off)	Endocrine glands
Cyst/o	Urinary bladder; a sac or a cyst	cystoscopy

Combining form	Meaning	Example of Terminology
Cyt/o	Cell	Cytology
Derm/o Dermat/o	Skin	dermatitis
Electr/o	Electricity	Electrocardiogram
Encephal/o	Brain	Electroencephalogram
Enter/o	Intestines (usually the small intestine)	Enteritis
Erythr/o	Red	erythrocyte
Gastr/o	Stomach	Gastrectomy
Glyc/o	Sugar	Hyperglycemia
Gnos/o	Knowledge	Diagnosis
Gynec/o	woman, female	gynecology

Combining form	Meaning	Example of Terminology
Hemat/o hem/o	Blood	Hematoma, hematology
Hepat/o	Liver	hepatitis
Iatr/o	treatment, physician	iatrogenic
Leuk/o	White	leukocyte
Log/o	Study of	dermatology
Nephr/o	Kidneys	nephritis
Neur/o	Brain	neurology
Onc/o	Tumor	oncology
Ophthalm/o	Eye	ophthalmologist
Oste/o	bone	osteoma

Combining form	Meaning	Example of Terminology
Path/o	disease	pathologist
Ped/o	Child	pediatric
Psych/o	Mind	psychologist
Radi/o	X-rays	radiology
Ren/o	Kidney	renal
Rhin/o	Nose	rhinitis
Sarc/o	Flesh	sarcoma
Sect/o	To cut	resection
Thromb/o	Clot, clotting	thrombocyte
Ur/o	Urinary tract, urine	urology

Suffixes

A suffix is a word ending that modifies a root.

A suffix may indicate that the word is a noun or an adjective and often determines how the definition of the word will begin.

For example, using the root **myel/o** meaning “bone marrow”, the adjective ending **-oid** forms the word myeloid which means “like or pertaining to bone marrow”.

The ending **-oma** produces myeloma, which is a tumor of the bone marrow.

Noun suffixes

Suffixes that mean “Condition of”

Suffix	Example	Definition of example
-ia	phobia	Persistent and exaggerated fear
-ism	alcoholism	Impaired control of alcohol use
-sis	acidosis	Acid condition of body fluids
-y	tetany	Sustained muscle contraction

Suffixes for Medical specialties

Suffix	meaning	example	Definition of example
-ian	Specialist	Physician	Practitioner of medicine
-iatrics	Medical specialty	Geriatrics	Study and treatment of the aged
-iatry	Medical specialty	Podiatry	Study and treatment of the foot
-ics	Medical specialty	Orthopedics	Study and treatment of the skeleton and joints
-ist	Specialist	Cardiologist	Specialist in the study and treatment of the heart
-logy	Study of	physiology	Study of function in a

Adjective suffixes

Suffixes that mean “pertaining to” or “resembling”

Suffix	Example	Definition of example
-ac	Cardiac	Pertaining to the heart
-al	Skeletal	Pertaining to the skeleton
-ar	Muscular	Pertaining to muscles
-ary	Dietary	Pertaining to the diet
-form	Muciform	Like or resembling mucus
-ic	Metric	Pertaining to a meter (unit of measurement)
-ical	Anatomical	Pertaining to anatomy
-ile	Febrile	Pertaining to fever
-oid	Toxoid	Resembling toxin (poison)
-ory	Respiratory	Pertaining to respiration
-ous	venous	Pertaining to a vein

Prefixes

A prefix is a short word part added before a word or word root to modify its meaning.

For example, the word lateral means “side”.

Adding the prefix *uni-*, meaning “one” forms unilateral which means “affecting or involving one side”.

Adding the prefix *contra-*, meaning “against or opposite”, forms contralateral, which refers to the opposite side.

Prefixes for numbers

Prefix	Meaning	Example	Definition of example
Prim/i-	first	Primitive	Occuring first in time
Mon/o	one	Monocular	
Uni-	One	Unicellular	
Hemi-	Half; one side	Hemisphere	
Semi-	Half; partial	Semisolid	
Bi- , di-	Two, twice	Bicuspid	A tooth with two points
Dipl/o-	Double	diploid	Having 2 sets of chromosomes
Tri-	Three	triplet	One of three offspring produced in a single birth
Quadr/l, tetra-	Four	Quadrant	One-fourth of an area
Multi-	many	Multiple	Consisting of many

Prefixes for colors

Prefix	Meaning	Example	Definition of example
Cyan/o-	Blue	Cyanosis	Bluish discoloration of the skin due to lack of oxygen
Erythr/o-	Red	Erythrocyte	A red blood cell
Leuk/o-	White, colorless	Leukoplakia	White patches in the mouth
Melan/o-	Black, dark	Melanin	The dark pigment that colors the hair and skin
Xanth/o-	yellow	xanthoderma	Yellow coloration of the skin

Negative prefixes

Prefix	Meaning	Example	Definition of example
A-, an-	Not; without	aseptic	Free of infectious organisms
Anti-	Against	antidote	Means for counteracting a poison
Contra-	Against, opposite	contraception	Prevention of conception
De-	Down, without	depilatory	Agent used to remove hair (pil/o)
Dis-	Absence, removal, separation	dissect	To separate tissues for anatomical study
In; im (used before b, m, p)	Not	insignificant	Not important
Non-	Not	noninfectious	Not able to spread disease
Un-	Not	unconscious	Not responsive

Prefixes for direction

Prefix	Meaning	Example	Definition of example
Ab-	Away from	abduct	To move away from the midline
Ad-	Toward; near	adhere	To attach to stick together
Dia-	Through	dialysis	Separation by passage through a membrane
Per-	Through	Percutaneous	Through the skin
Trans-	Through	transfusion	Introduction of blood or blood components into the blood stream

Prefixes for degree

Prefix	Meaning	Example	Definition of example
Hyper-	Over, excess, abnormally high, increased	Hyperventilation	Excess breathing
Hypo-	Under, below	Hypoxia	Decreased oxygen in the tissues
Olig/o-	Few, scanty	Oligomenorrhea	A scanty menstrual flow
Pan-	All	Panacea	Remedy that cures all ills; a cure-all
Super-	Above, excess	supernumerary	In excess number

Prefixes for size and comparison

Prefix	Meaning	Example	Definition of example
Equi-	Equal, same	Equilateral	Having equal sides
Eu-	True, good, easy, normal	euthanasia	Easy or painless death (thanat/o means death)
Hetero-	Other, different, unequal	heterosexual	Pertaining to the opposite sex
Homo-, homeo-	Same, unchanging	homothermic	Maintaining a constant body temperature
Iso	Equal, same	isotonic	Same salt concentration
Macro-	Large, abnormally large	macrocyte	Large red blood cell
Mega-, megalo-	Large, abnormally large	megalodont	Large tooth
Micro-	Small	microscopic	Extremely small
Neo-	New	neonate	Newborn infant
Ortho-	Straight, correct	orthodontics	Pertaining to

Prefixes for Time and/or position

Prefix	Meaning	Example	Definition of example
Ante-	Before	Antenatal	Before birth
Pre-	Before, in front of	Predisposing	Leading toward a condition
Pro-	Before, in front of	Prodrome	Symptom that precedes a disease
Post-	After, behind	postmenopausal	After menopause

Prefixes for position

Prefix	Meaning	Example	Definition of example
Dextr/o-	Right	Dextrocardia	Location of the heart in the right side of the chest
Sinistr/o	Left	sinistrad	Toward the left
Ec-, ecto-	Out; outside	ectoderm	Outermost layer of the developing embryo
Ex/o-	Away from; outside	excise	To cut out
End/o-	In; within	endoscope	Device for viewing the inside of a cavity or organ
Mes/o-	Middle	mesencephalon	Midbrain
Syn-, sym- (used before b, m, p)	Together	synapse	A junction between two nerve cells
Tel/e-, tel/o-	end	telangion	A terminal vessel

Forming plurals

Many medical words have special plural forms based on the ending of the word. There are however some exceptions to this rule. E.g. plural of virus is viruses etc

Word ending	Plural ending	Example
a	ae	Gingiva – gingivae
en	ina	Foramen – foramina
ex, ix, yx	ices	Appendix – appendices
is	es	Diagnosis – diagnoses
ma	mata	Stigma – stigmata
nx (anx, inx, ynx)	nges	Phalanx – phalanges
on	a	Spermatozoon – spermatozoa
um	a	Ovum – ova
us	ii	Embolus - emboli

спасибо
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mochchakkeram
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